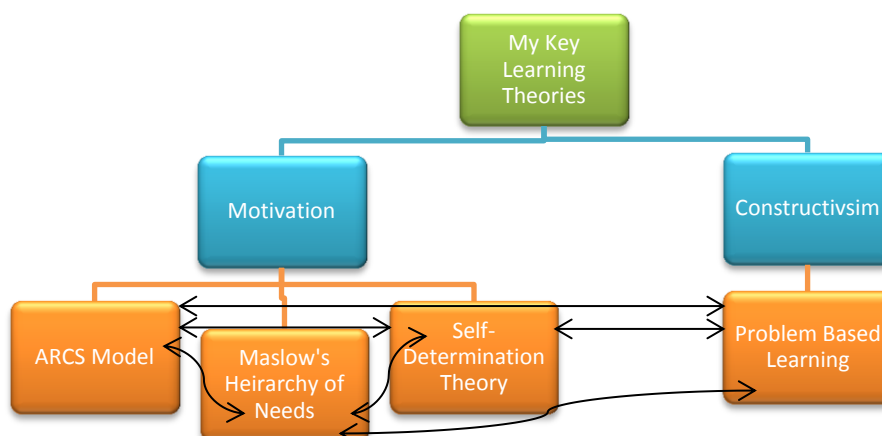


Summary of Learning Theories

Kelly Alphonso



Theory	Description	Useful in Mathematics
<u>ARCS Model</u>	The ARCS model of motivational design was determined by John Keller who states that there are four steps required for promoting motivation during the learning process. These four steps include attention, relevance, confidence and satisfaction (ARCS). The process begins by gaining the students attention, this can be accomplished by perceptual or inquiry arousal. Secondly, students need to see the relevance of the information to increase their motivation, relevance can be found through experience, future usefulness or present worth. Thirdly, students need to gain confidence while learning material. A sense of confidence can be achieved by providing students with small steps that they can accomplish and giving students positive feedback. Finally, the last step is satisfaction. Students must be able to find learning rewarding or satisfying. This satisfaction should ideally be intrinsic, where students are doing it for a sense of achievement or personal entertainment.	For many, mathematics is a subject that they detest because of its complexity. Also, some believe that the subject of mathematics is uninteresting and irrelevant to their everyday life. For these reasons and many more, many students lack the motivation to do well in the class. By using Keller's ARCS model of motivation, students are first and foremost able to become interested in the subject because their attention has been caught and they can see the relevance or usefulness for math in the real world. By providing students with tasks that they can succeed at and giving them positive feedback, they are able to feel more confident in the subject. Finally, through accomplishing tasks that students once thought were too difficult, they gain a sense of satisfaction and are more often than not, more likely to challenge themselves again.
<u>Maslow's Hierarchy of Needs</u>	According to Maslow's theory, self-actualization cannot be achieved until all of the basic needs in this hierarchy have been met. These basic needs include physiological (food, water, shelter and warmth), safety (security, stability and freedom of fear), belonging/love (friends and family) and self-esteem (pursue inner talent, creativity and fulfillment). By achieving all of the basic needs an individual is able to reach self-actualization.	Teachers should constantly try to provide the basic needs of the hierarchy for students. To ensure that a student reaches self-actualization the basic needs must be met, not being able to move to the next level, until all the needs of the first are met. It is important to acknowledge that when the basic needs are not being met then students are more likely to make poor choices. They lack or deficiency of their needs become predominant if they are not met. Students are then unable to meet a level of self-actualization where they are motivated by

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	<p>Self-actualization is defined as being true to one's own nature and seeking self-fulfillment. A self-actualized person implies that they are able to reach their full potential and be creative.</p>	<p>personal growth and the goal in becoming the person they are capable of becoming.</p> <p>In mathematics class, a subject that can often be considered a student's least favourite or most difficult class a teacher's goal should to help achieve the basic needs so they are motivated to try their best and they are driven to understand and succeed, i.e. reach a level of self-actualization.</p>
<p><u>Self-Determination Theory</u></p>	<p>Edward L. Deci and Richard M. Ryan were credited for the self-determination theory. The self-determination theory states that if a person's universal needs are met then they are motivated to succeed in their future endeavours. The needs that Deci and Ryan define as universal are: competence, individuals determine the outcome for themselves; relatedness, individuals need to fit in and be connected with others, and; autonomy, an individual's need to be in charge of their own life.</p>	<p>Mathematics is a subject where a student's basic knowledge of a subject often has to be recalled and combined to solve a problem. Students can often become unmotivated by the complexity or difficulty of a question. By ensuring that all three of the universal needs are nurtured by a teacher. Students are more likely to be intrinsically motivated in their class.</p> <p>By becoming intrinsically motivated, Deci and Ryan determined that intrinsic motivation provided students with the motivation to be more engaged in the classroom, and have an increased determination in difficult learning activities. This applies directly to a mathematics class where students are constantly challenged and asked to use their problem solving skills, to better their knowledge and understanding.</p>
<p><u>Problem Based Learning</u></p>	<p>Problem based learning was defined at the medical school at McMaster University by being a, "Hands-on, active learning centred on the investigation and resolution of messy, real-world problems". This occurs when teachers and students take on the roles as facilitator and problem solvers, respectively. The main idea of this theory is to have students work as investigators to apply their knowledge to new situations.</p>	<p>Students are taught a number of valuable skills that can assist them in their everyday life. These skills include but are not limited to critical thinking, creativity and problem solving skills, as well as increased motivation. By learning these skills students are able to be given a word problem and have the appropriate tools (i.e. mindset, motivation, basic knowledge) as to how to approach the question. An additional advantage to problem based learning is that by learning these skills students are able to go out in the real world and apply what they have learned to real life situations.</p>